

Space News Roundup

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New strategic plan establishes vision

JSC wants leadership role in anything that involves sending people into space

When JSC's new strategic plan comes out in January, it will call for an integrated perspective of all human space flight that employees can use in their everyday work.

That's what a panel of top JSC managers told those who attended a recent open panel session hosted by the NASA/JSC chapter of the National Management Association at the Gilruth Center.

"A fundamental basis for having it is so that we can all sing from the same sheet of music," said JSC Deputy Director P.J. Weitz. "We need

to understand what this center is about, where we're going, how we intend to get there and the time frame in which we plan to get there."

Weitz said the JSC plan will fit in with an agencywide strategic plan, one that has not yet been established but soon will be.

"If we're going to have a viable space program in this nation, in order to maintain our status as an international power, a leader in world technology and politics," he said, "we need to have a clear understanding of how we're going to get there with the limited resources that obvi-

ously we are coming up against."

Lyn Gordon-Winkler, manager of the New Initiatives Project Planning and External Affairs Office, said the new plan is an outgrowth of Total Quality Management retreats held for senior JSC managers. At those retreats, the center's leaders agreed that the top priority needed to establish continuous improvement principles at JSC was a vision so that everyone will be pursuing the same end.

Mission Operations Deputy Director John O'Neill was tapped to chair a strategic planning

panel, with the New Initiatives Office supporting the group's work.

The bottom line, she said, is that JSC wants to take a leadership role in anything that involves sending people into space to explore and learn.

"We have adopted a vision for the center of pioneering space exploration," O'Neill said. "We think it fits the challenge facing us and we think it fits the attitude of our team."

O'Neill said the plan zeros-in on an expansion
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Five join Seddon on SLS-2 crew

By Barbara Schwartz

Two additional NASA astronauts and three payload specialist candidates have been added to the crew of STS-58, the Spacelab Life Sciences-2 mission set for launch in mid-1993.

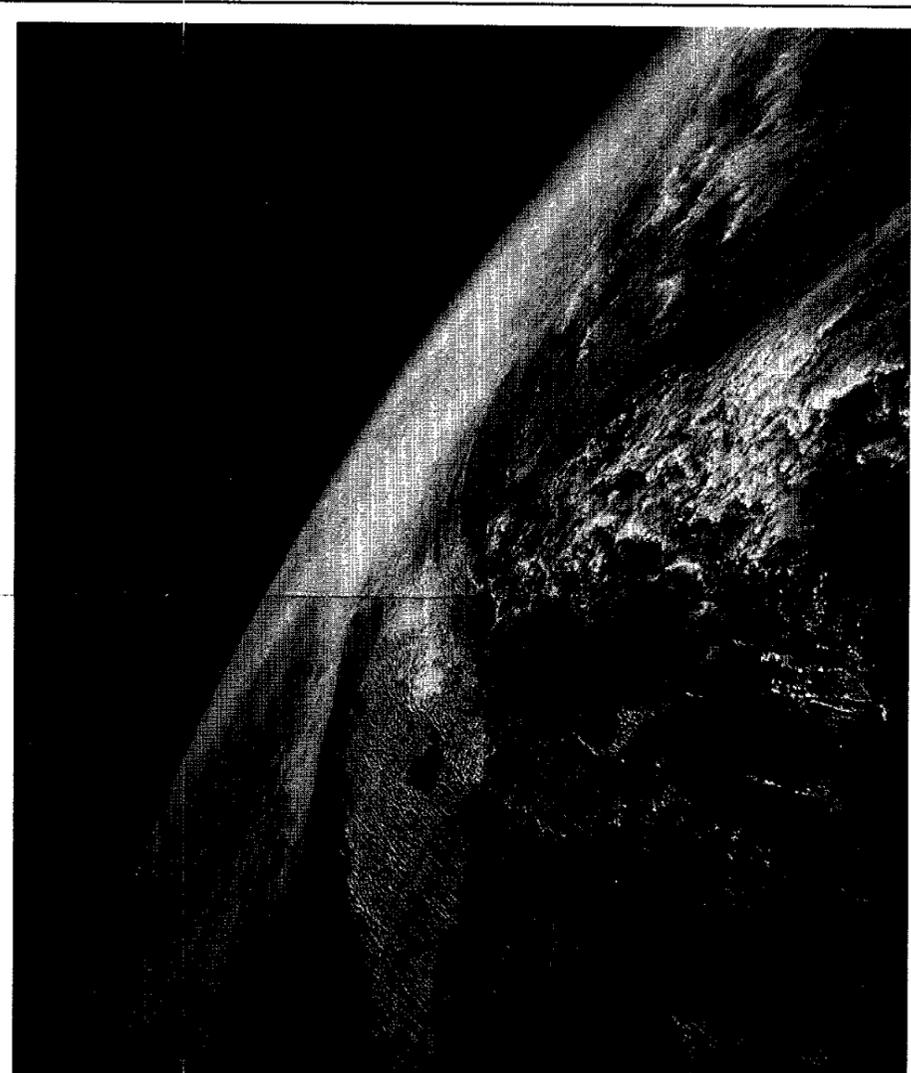
Joining Payload Commander Rhea Seddon as mission specialists are three-time space flight veteran Shannon Lucid, Ph.D., and David Wolf, M.D., astronaut class of 1990.

Payload specialist candidates for the seven-day flight aboard *Columbia* are Jay Buckley, M.D., an assistant professor at the University of Texas, Southwestern Medical Center, Dallas; Martin J. Fettman, D.V.M., an associate professor, Colorado State University, Fort Collins; and Laurence Young, Sc.D., professor and director of the Man-Vehicle Laboratory, Massachusetts Institute of Technology, Cambridge.

After further training and evaluation, one of the payload specialist candidates will be selected to fly as the prime payload specialist and the others will support the mission from the ground as backups.

The SLS-2 mission will be the second shuttle Spacelab mission dedicated to the investigation of the effects of microgravity on human physiology.

Life sciences experiments and flight techniques developed on missions such as SLS-2 are precursors for research that will be done on Space Station *Freedom*. These investigations are crucial if humans are to live and work in space safely and effectively.



CAPE CLOUDS — Florida and the Bahamas show up clearly in this Earth-observation photo taken by the STS-44 crew of *Atlantis*. The crew will present video, film and photos from its recent mission to employees at 3 p.m. today in Teague Auditorium.

NASA Photo

Microgravity lab packed on *Discovery*

By James Hartsfield

Discovery, with the International Microgravity Lab-1 packed aboard, took the first step toward STS-42 Thursday, moving to the Vehicle Assembly Bldg. to be attached to the solid rockets and external fuel tank.

Preparations of IML-1 have taken more than two years at Kennedy Space Center, and were essentially completed last week as the STS-42 crew — Commander Ron Grabe, Pilot Steve Oswald, Mission Specialists Norm Thagard, Dave Hilmers and Bill Readdy, and Payload Specialists Roberta Bondar and Ulf Merbold — gave the lab a final inspection. All that remains to be done are routine systems checks at the launch pad and late stowage of several flight experiments.

"It has been a very clean and smooth-flowing payload," said Glenn Snyder, KSC's STS-42 payload processing manager. "The contractor and NASA teams have worked hand-in-hand on IML-1, and we're now at a point where we're just about ready to fly."

Discovery may be moved from the VAB to Launch Pad 39A as early as Tuesday in preparation for launch in late January.

Meanwhile, *Atlantis* arrived at KSC atop the Shuttle Carrier Aircraft on Sunday and is now inside Bay 2 of the processing hangar. Preparations were under way this week to open the payload bay doors, remove the ferry flight fittings and inspect the heat-protection tiles on the spacecraft.

In Bay 1 of the processing hangar, work preparing *Endeavour* for its first space flight continues. A test firing of *Endeavour*'s main engines is scheduled at the launch pad in early March.



Space station one year older, closer to reality

By Kyle Herring

One year later and one year closer was the message presented by top managers during a recent briefing on the progress of the Space Station *Freedom* Program at NASA's Reston, Va., office.

"The most significant thing is that this is the first December that we have not been going through a redesign, rephase or restructuring," said Dick Kohrs, director of the *Freedom* program. "That stability is important."

Displaying prototype hardware for the space station and updates on construction of facilities at JSC and Kennedy Space Center, NASA Administrator Richard Truly said he feels "this is a very real program."

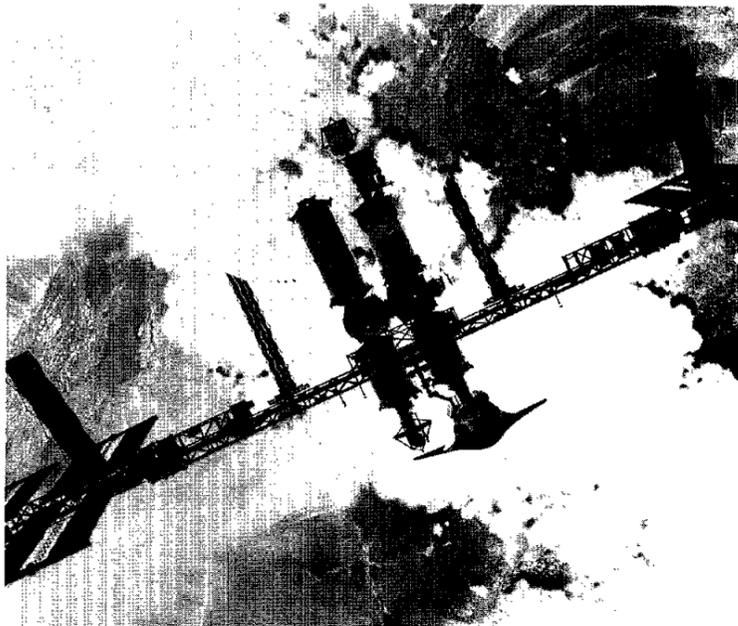
"You get a sense that a tremendous amount of stability has

been added to the program at an engineering level, a ground facilities preparation level and a mission operations preparation level this year," he added.

Outlining progress from a JSC standpoint, John Aaron, manager of the Space Station Projects office, said the coming year is "the year of the hardware in Work Package 2" now that the preliminary design review for the man-tended configuration is completed.

With several station-related shuttle flight tests completed and more planned in the near future, design decisions leading to flight hardware manufacturing can be finished, he said.

In addition to continuing work on hardware development to ease crew transport along the station's truss
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NASA Illustration by Alan Chinchar

An artist's concept looks down from above on Space Station Freedom as it orbits the Earth. This view shows the four pressurized modules — three laboratories and a single habitat module — that will serve as home and office for the crew's four astronauts and scientists.

Prospective astronauts visit JSC

By Barbara Schwartz

The first of several groups of prospective astronauts visited JSC this week for orientation, interviews and medical evaluations.

About 90 of the more than 2,200 applicants are to be interviewed during December and January. Twenty-two visited JSC this week. Another 22 are expected next week.

All have a chance to be among the final 12 to 19 who will be named as astronaut candidates next spring. Those selected will join six international astronaut candidates representing Canada, Japan and the European Space Agency for training at JSC beginning later in 1992.

The number of candidates selected depends upon the space shuttle flight rate, overall program requirements, and astronaut attrition.

JSC

Ticket Window

The following discount tickets are available for purchase in the Bldg. 11 Exchange Gift Store from 10 a.m.-2 p.m. weekdays.

General Cinema (valid for one year): \$4.

AMC Theater (valid until May 1992): \$3.75.

Loews Theater (valid for one year): \$4.

Astroworld Holiday in the Park (Nov. 29, 30, Dec. 1, 6-8, 13-23, 26-31): \$5.50.

Nutcracker (8 p.m. Dec. 13, 1 and 8 p.m. Dec. 14, 2 p.m. Dec. 15, University of Houston-Clear Lake Bayou Theater): \$10, limit four per employee.

Entertainment '92 (coupon book): \$26 for FBA members' first book; \$27 for all others.

JSC

Gilruth Center News

Sign up policy — All classes and athletic activities are first come, first served. Sign up in person at the Gilruth Center and show a badge or EAA membership card. Classes tend to fill up four weeks in advance. For more information, call x30304.

Defensive driving — Course is offered from 8 a.m.-5 p.m. Feb. 8. Cost is \$19.

Aerobic dance — High/low-impact classes meet from 5:15-6:15 p.m. Tuesdays and Thursdays. Cost is \$32.

Exercise — Low-impact class meets from 5:15-6:15 p.m. Mondays and Wednesdays. Cost is \$24.

Fitness program — Health Related Fitness Program includes medical examination screening, 12-week individually prescribed education program. Call Larry Wier, x30301.

JSC

Technical Library News

The following selections are now available in JSC's Technical Library, Bldg. 45, Rm 100.

The International Review of Aerospace Design and Development. World Aerospace Technology, 1990. TL695 .W67.

The Sixth National Space Symposium Proceedings Report. National Space Symposium, 1990. TL787 .N37 1990.

On the Wings of a Dream: The Space Shuttle. NASA, 1987. TL795.5 .057 1987.

Beyond the Baseline: Proceedings of the Space Station Evolution Symposium. NASA Scientific and Technical Information Branch, 1990. TL797 .B49 1990.

JSC

Swap Shop

Swap Shop ads are accepted from current and retired NASA civil service employees and on-site contractor employees. Each ad must be submitted on a separate full-sized, revised JSC Form 1452. Deadline is 5 p.m. every Friday, two weeks before the desired date of publication. Ads may be run only once. Send ads to Roundup Swap Shop, Code AP3, or deliver them to the deposit box outside Rm. 147 in Bldg. 2. No phone or fax ads accepted.

Property

Lease: Egret Bay Villa, waterfront, 1 BR, fpl, W/D, refrig, microwave, ceiling fans, boat ramp, 2 car covered parking, pool, security gate, storage, \$550/mo. Sean, 283-9323 or 996-7693.

Lease: Pipers Meadow, 3 BR, 2 car garage, fenced yard, \$795/mo, avail Feb 15, 1992. 488-2946.

Sale: Meadowbend, 3-2-2, covered deck, new metal garage, new front doors, new paint/fixtures. John, x31929 or 334-3422.

Sale/Lease: Waterfront, 3-2-2, boat slip in shed/w lift, storage locker, exercise rm, sauna, pavilion on the lake, avail Dec 13, 1991 or sooner, \$750/mo plus \$140 fixed util bill, \$69.9K. 280-5801 or 326-2221.

Sale: Countryside, 4-2-2, quiet cul-de-sac, storage bldg, no flooding. Dennis, x39012 or 554-4233.

Lease: Baywind I condo, 2-1.5.2, all appli, W/D, fans, \$470/mo. L. Das, x33235 or 488-5532.

Sale: Texas Medical Ctr condo, 2-1-1, FPL, W/D, microwave, alarm sys, assume FHA loan, \$314.18/mo. (409) 744-6221.

Rent: Ski Heavenly Valley, condo, avail 2/24/91 to 3/2/92, \$420. Tom, x38298 or 488-4089.

Lease: Middlebrook II, 3-2-2, 1941 sq ft, new carpet, FPL, fence, garage w/opener, no pets, no smokers, ex cond, \$850/mo plus \$850 dep. x30686 or 480-3260.

Lease: Barringer Way, 2-1, W/D conn, pool, storage area, no pets, ex cond, avail 12/16/91, \$425/mo. 486-2048.

Sale: Egret Bay condo, 2-2, covered parking, all appli, waterfront community, FPL, blinds, fan, patio, storage, pools, boat ramp, \$39.5K. 333-9281 or 481-3637.

Lease: Pearland/Springfield, 3-2-2A, alarm sys, no pets, \$1K/mo. 929-7208 or 489-9337.

Cars & Trucks

'78 Chevy Camaro, V8, good cond, needs body work, \$500. x31427.

'83 Chevy PU, \$19K OBO. 534-6750.

'81 Buick Regal Limited, loaded, auto, A/C, tape, good cond, 93K mi, \$1490. 335-2465 or 332-4302.

'80 Cutlass, '84 5.7 diesel, needs head

gasket repair, otherwise good cond, \$375 OBO. 332-2229.

'79 Suburban, 4 wheel dr, rebuilt 350 eng, \$2.5K. John Trebes, X37215 or 333-4374.

'82 Ford Club wagon, 6 cyl, 300, dual air, good paint/upholstery, light trlr hitch, cruise control, \$2.9K OBO. x39141 or 482-2197.

'82 Chevy K-5 Blazer, 4 wheel dr, V8, auto loaded new tires/brakes, ex cond, \$4.5K. Andrea, x34545 or 488-1567.

'86 Mazda PU, new brakes, rear end, clutch cyl, 89.9K mi, \$2K OBO. 474-3553.

'86 Nissan 300ZX, red, loaded, leather int, \$7.5. 480-7138.

'85 Ford Thunderbird, red w/tan int, loaded, \$3.7K. x32491 or 326-3375.

'89 Ford truck, auto, V-6, fuel inject, loaded, ex cond, 30K mi, \$9.6K. Hector, x31499 or (409) 925-8857.

'81 Buick Regal, 85K mi, 15K mi on new eng, good tires, good cond, \$1.8K. Ed, 283-5726 or 482-7959.

'88 Toyota Corolla LE, auto, A/C, cruise, tilt, tint, alloy wheels, met blue, ex cond, \$6.9K. 283-4324 or 334-3097.

'84 Chevy Camaro, power, A/C, auto, AM/FM/cass, alarm, \$2750. Rogers, x38851 or 944-7042.

'83 Buick LeSabre Limited, 8 cyl, 4 dr, A/C, P/S, P/B, vinyl top, ex cond, \$3.6K. 332-5725.

'75 Buick LeSabre, BO. Larry, 480-1074.

'83 Cadillac El Dorado, body in good shape, eng needs work, \$1695 OBO. L. Das, x33235 or 488-5532.

'91 Toyota Corolla, 4 dr, 2.7K mi, auto, A/C, AM/FM/cass, P/S, rear defogger, child lock, sound shield, protect pkg, red. 286-9344.

'83 Toyota Supra, \$2.5K. x36463 or 554-6104.

'76 Ford Elite, ex cond, \$1.5K. x33678 or 487-7494.

'80 Pontiac Phoenix, 4 dr, hatchback, 4 spd, A/C, 130K mi, \$950. Russ, 244-9667.

'78 Chev Malibu wagon, 62K mi, 305 V8, A/C, int in ex cond, \$1695. x35180 or 326-3706.

'83 Chev Camaro Z28, 305 V8, 73K mi, new tires, T-top, ex cond, \$3K OBO. Tim, x31838 or 480-4226.

Cycles

'74 Yamaha 650 twin, needs carb work, 12K mi, windjammer/not attach, 2 helmets, \$650 OBO. Robin, 280-1118 or Gerald, 479-7940.

Boats & Planes

'78 36' Islander Freeport sloop, new engine, parts, labor warranty to 3/92, new trans, new upholstery, new electronics, full warranties 1-3 yrs, new bottom, new lighting, 3 sails, 2 TV's, h/c press water,

Today

STS-44 briefing — The crew of STS-44 will brief JSC employees on their recently completed mission at 3 p.m. Dec. 13 in Teague Auditorium.

Cafeteria menu — Special: Salisbury steak. Entrees: baked scrod, broiled chicken with peach half. Soup: seafood gumbo. Vegetables: cauliflower Au gratin, mixed vegetables, buttered cabbage, whipped potatoes.

Saturday

SHPE meets — The Society of Hispanic Professional Engineers Region V invites the engineering public to learn about SHPE's mission, vision, goals and objectives at 10 a.m. Dec. 14 at the Gilruth Center. For more information, call Glenn Donovan, 282-4294.

Sunday

Lunar enterprise — The first Lunar Enterprise Conference featuring American, Russian and Japanese experts, will be held Dec. 15-16 at the Hilton Hotel, San Francisco International Airport. Registration is \$295. Call 408-996-9210 for more information.

Monday

Cafeteria menu — Special: beef and macaroni. Entrees: ham steak, Parmesan steak. Soup: chicken and rice. Vegetables: green beans, carrots, au gratin potatoes.

Tuesday

Christmas concert — The Lockheed Music Makers Choir will

present its annual Christmas concert at 11:30 a.m. Dec. 17 in Teague Auditorium. NASA employees, contractors and the public are invited. For more information, call Ray Suffron, x31773.

Cafeteria menu — Special: Mexican dinner. Entrees: potato baked chicken, barbecue spare ribs. Soup: tomato. Vegetables: squash, ranch beans, Spanish rice, broccoli.

Wednesday

Astronomy seminar — The JSC Astronomy Seminar will hold an open discussion meeting at noon Dec. 18 in Bldg. 31, Rm. 129. For more information, call Al Jackson, 333-7679.

Cafeteria menu — Special: baked meatloaf with Creole sauce. Entrees: baked scrod, liver and onions, ham steak. Soup: seafood gumbo. Vegetables: beets, Brussels sprouts, green beans, whipped potatoes.

Thursday

Project Management Series — Software Cost Engineering applications will be discussed at the Dec. 19 session of the Project Management Series 1991-1993 in the University of Houston-Clear Lake Bayou Bldg. Rm. 2-504. NASA employees should contact Jane Kremer, x32601, to register.

SOLE meets — The Houston chapter of the Society of Logistics Engineers will host a Christmas social at 5:30 p.m. Dec. 19 at the South Shore Harbour Country Club in League City. Cost is \$7.95. For reservations, call Lee Graham, x30913, or Dennis Wise, x33661.

Cafeteria menu — Special: smothered steak with dressing. Entrees: chicken and dumplings, corned beef with cabbage. Soup: beef and barley. Vegetables: spinach, cabbage, cauliflower au gratin, parsley potatoes.

Dec. 20

Cafeteria menu — Special: tuna and salmon croquette. Entrees: pork chop with yam rosette, Creole baked cod. Soup: seafood gumbo. Vegetables: Brussels sprouts, green beans, buttered corn, whipped potatoes.

Dec. 25

Christmas Day — Most JSC offices will be closed for observance of the Christmas holiday. JSC also will be closed to public visitors.

Jan. 9

IEEE meets — The Galveston Bay section of the Institute of Electrical and Electronics Engineers will meet at 11:30 a.m. Jan. 9 at the Gilruth Center. Robert Best, of Lockheed Engineering and Sciences Co., will discuss the "Dynamic Space Vehicle Communications Simulator." Cjall Marcia Taylor, x30195.

June 1

Fuzzy logic workshop — JSC and the University of Houston-Clear Lake will host the third International Joint Technology Workshop on Neural Networks and Fuzzy Logic June 1-3, 1992 at the Gilruth Center. For more information, call Carla Armstrong, x39071.

x30915 or 796-0231.

Household

Chrome mirror dining rm tbl, 4 chairs, was \$1.8K, now \$500; 4 piece curved sectional, was \$1.1K, now \$90; blk mirror coffee tbl, \$80. Jack Kinsey, 486-0421.

Rattan sofa, green/peach cushions, good cond, \$75 OBO. Jennifer, 283-5304 or 286-0901.

Queen sz waterbed, flotation matt, heater, frame, \$200 OBO. 486-0926.

Lazy-Boy dual recliner loveseat, apricot, ex cond, \$150. 482-5837.

Loveseat, wing-back chair, ottoman, trunk, 6 mo old, floral/rattan. Michelle, 488-3773.

Queen sz waterbed, oak, hdbd, underdresser, matching chest, ex cond. \$650 OBO. 338-2829.

Bassett solid oak spindle baby bed, \$150; Noritake china, pattern Devotion, 6 place settings, new, \$100. Karen, 480-1658 or Candy, 488-3679.

Large bar w/2 bar stools, needs work, \$45. Mike, 486-4975.

Kenmore portable dishwasher, \$175; Simmons crib w/matt, \$250; full sz maple hdbd/tbdt, \$75; Graco stroller Brougham, \$40. x36776 or 286-3266.

Oak qn sz waterbed w/padded side rails, \$225. 476-4872.

Coffee tbl, 2 end tbls, \$40; lg exec desk, lighted hutch, armchair on rollers, \$50; utility metal shelves, \$5/ea; book shelves/wall units, \$10/ea; Sharp stereo sys, amp, tuner, turntable, cass tape player, 2 floor speakers, shelf unit, \$75; small lamps, \$5/ea; drawing/ drafting tbl, \$15; informal dinette tbl w/4 chairs, \$20. 280-0754.

Round bed, 8'5", blk leather frame, storage underneath, \$250. 326-3759.

Couch and loveseat, brwn w/blue and beige, good cond, \$200/pr OBO. Rosie, 244-5404.

Large square glass top table w/6 chairs, chrome legs, \$100. Mary, 479-4085.

Gas stove/oven, cream color, ex cond, \$140. x31826 or 480-9436.

Five piece modular sofa w/2 recliners and queen sz hide-a-bed, brwn, \$650 OBO; La-Z-Boy recliner, rust,

\$50 OBO; office desk w/exec chair, \$100 OBO. Robin, 280-1118 or 479-7940.

Sofa table and end table, contemp, white oak, \$90/ea. 554-7012.

Electric stove w/double oven, vent, harvest gold, ex cond, \$350. Foster, x35265.

Queen sz BR set, 5 pieces, pecan, good cond, \$250; wall mount book shelves, \$50. 482-6651.

'82 Hotpoint refrig, 23.5 cu ft, almond, side-by-side, ice/water in door, \$500 OBO. Dan, x35453.

Oak qn sz waterbed w/padded side rails, \$225. 476-4872.

Chrome base dining room tbl w/6 blk vinyl and chrome chairs, wood top, was \$800, now \$200. 482-7774.

Wanted

Want bed sheets, any type, sz, color, any cond. Jo Cook, 941-2689.

Want roommate to share house in Seabrook, 3-2, W/D, lg yard, \$225/mo plus 1/2 util. Steve, 333-7819 or 474-5226.

Want sm chest type freezer, good running cond. Fran, 333-6277 or 339-3562.

Want silver/wht mini female Schnauzer. Dorothy, 482-1505.

Want old toys, 12" GI Joe/access, Star War, Star Trek. 464-8694.

Want Larry Fast Synergy CD recordings. 482-8494.

Want mature, responsible adult to care for 4 mo old infant, prefer in Bay Glen home 3:00-5:00 pm, 4 days week, non-smoker. 480-4918.

Want 2 cotton bowl tickets. Phil, x38005 or 488-4453.

Miscellaneous

7' artificial christmas tree, very full, \$45 OBO. Laurie, 538-1667.

Precious Moments dated xmas ornaments, '81-'87, priced according to secondary market value; also assorted figurines. x31836 or 334-3995.

Twenty gal aquarium, incl fish, \$75; 52" ceiling fan, new, \$30; stereo cabinet, \$20. 538-3431.

Wedding dress, sz 10, white satin, long sleeves, beaded bodice, 10 ft train, was \$850, now \$450 OBO. 338-2829.

Text books for UH Central Engr class, ELEE 6370/5440 Adv digital design, ex cond. Youm, 283-4813.

Camper shell, alum, fits mid-sz PU, \$90 OBO. 283-4087 or 480-3110.

One week winter vacation anywhere in US, condo rental, \$550. 286-8417.

Four Jeep steel wheels w/trim rings, center caps, \$100. x32491 or 326-3375.

Whirlpool chest freezer, 10 cu ft, \$100; wool rug, 4x6 ft gold tone, \$75; IBM XT comp Heath computer w/mo, 2 floppies, 640K, manuals, \$150. 486-2451.

Back seat for Jeep CJ, \$85; free standing FPL, \$70. 331-8130.

Golf clubs, mens irons 2 thru wedge, 1" extra length, forged, ex cond, \$80. Robert, 482-0374 or x35258.

Wetsuit, O'Neill reactor, XL, ex cond, \$100. David or Bill, 554-6242.

Two formal dresses, sz 8 and 10, ex cond, \$50/\$75 OBO. x31497 or 554-4215.

Precor 730e stair climber, exercises both arms/legs, ex cond, \$500. x31427 or 992-4307.

Super twin waterbed frame w/liner, heater, hdbd, \$50; artificial Christmas tree, 7 ft, flocked, \$25; scooter, \$15. 488-3747.

Photographic

Contax 139 quartz camera, 50mm f/1.4 Zeiss Planar, data back, winder, \$350. Stacey, x32649 or 480-9793.

Pets & Livestock

Keeshond puppies, \$200, wolf gray. Chris or Julie, 474-3152.

AKC miniature Schnauzer puppies, ready Dec 20, \$250. Dariyn, x38279 or 482-9231.

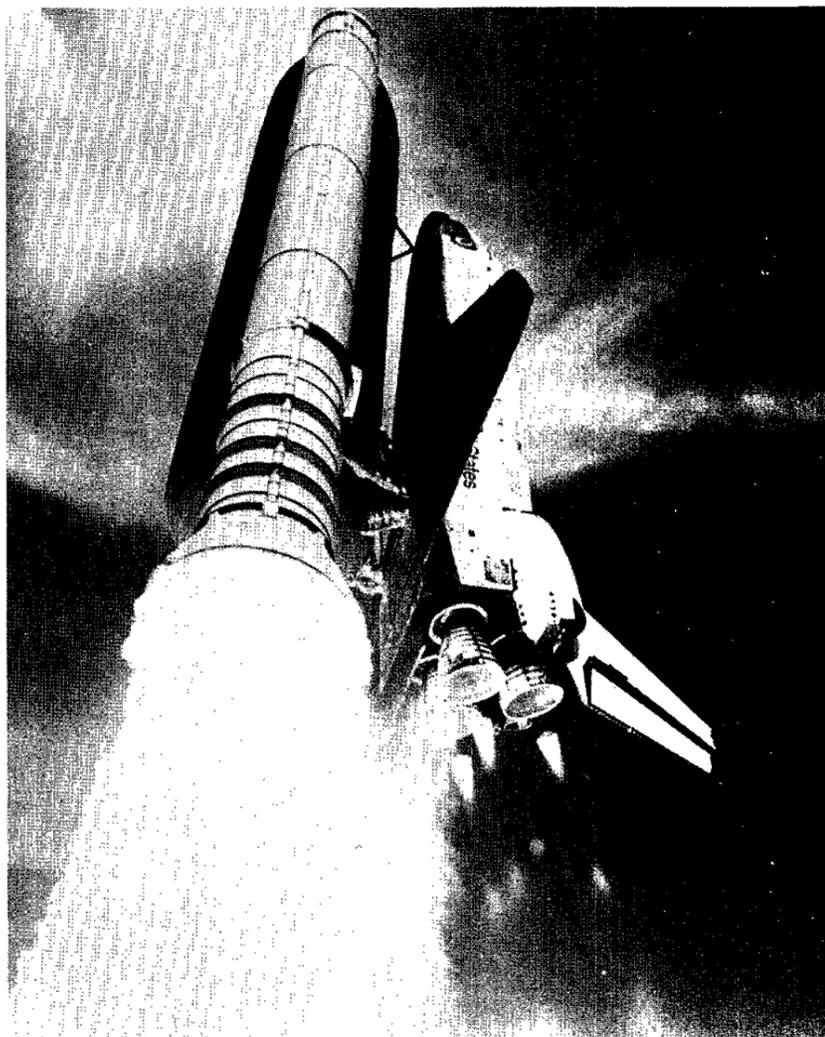
AKC Yorkshire Terrier, 15 wks old, wormed, 1st shots, \$250 OBO. George, x38959 or 486-6944.

Young cat, blk/gray striped, neutered, declawed. Alan, x38854 or 486-4243.

Lost & Found

Lost female blk cat, 9/mo old, Galveston area/Seaside Point condos, reward.

Son of SNR's Trivia Challenge



1. During a launch, the solid rocket boosters ignite at T-0 seconds. At what point do the main engines begin to fire?

Last year the Space News Roundup, much to the amusement of some and the bewilderment of others, published its first Trivia Challenge. Well sharpen your pencils, pull out your cheat notes and turn on the phone mail. This week we are proud to offer "Son of SNR's Trivia Challenge."

We hope this year's test has something for everyone plus a few things we put in for our own enjoyment. The answers are on Page 4.

Good luck, and be careful out there.

2. What was the last mission in which the mission designation matched the mission number?
3. What two astronauts have participated in 50 percent of the Thanksgiving dinners on orbit?
4. How many jellyfish flew on STS-40? (Answer must be within 50.)
5. What was the original number of Bldg. 1?
6. What was officially called Test No. 108?
7. What was the nickname of the plume observation burns performed on STS-39?
8. What is the phone number that is the equivalent of 911 for on-site emergencies?
9. What is the name of the dinosaur mascot for the JSC Child Care Center?
10. Who is the first non-pilot astronaut to fly four shuttle missions?
11. Who set the world's altitude record in the Class C-1A piston engine category this year?
12. Which flown astronaut, having completed a successful mission has logged the least amount of time in space?
13. The crew of the first flight of *Endeavour* will be taking an old piece of wood along. What significance does it have for that orbiter?
14. What was the original function of the WETF building?
15. Who was the last U.S. president to visit JSC?
16. Which U.S. astronaut has experienced the shortest time between space flights?
17. Who has been referred to as "B+11"?
18. What single calendar year had the most shuttle missions?
19. What is the exit number on Interstate 45 for NASA Road One?
20. Who said "Please be informed there is a Santa Claus"?
21. What significance does 1992 have for the aerospace community?
22. Name the Roundup editor and two associate editors. (Don't bother looking on the last page. We deleted the staff box this issue.)
23. What countries have the (flown) payload specialists represented?
24. What's Space Center Houston's first exhibit?
25. The Shuttle main engines are said to produce enough power to equal how many Hoover Dams?
26. Mir means "Peace." What does Buran mean?
27. What was the theme for this year's JSC Picnic?
28. Who is the youngest member of the astronaut corps?
29. What is the contract number of the Space Transportation System Operations Contract?
30. Everyone knows that Sputnik was the name of the first Soviet satellite. What was the name of the first United States satellite?
31. What does the motto "Res Gesta

Per Excellentiam" on the Mission Operations Directorate patch mean?

32. In Bldg. 30 you can find FCRs, MPSRs, CSRs, SPANs and the MER. What do the acronyms stand for?

33. How many men have flown into space on the Soviet space shuttle Buran?

34. Who was the first American to fly in space three times since the return to Flight?

35. How many windows are there in the space shuttle crew cabin?

36. How many landing gear wheels does the space shuttle have?

37. Name the first person to have flown in space as a mission specialist, pilot and commander.

38. Which orbiter that has flown in space, has never deorbited to land at the Kennedy Space Center?

39. A large number of members of the Space Task Group came from a foreign country. From which country did they come?

40. The Mission Control Center was closed to the public for about two months earlier this year for non-mission related reasons. Why?

41. Which orbiter name has never appeared on a mission patch?

42. You might not know it, but JSC has a shuttle orbiter vehicle on site. Where is OV-097?

43. What is the purpose of Bldg. 40?

44. Which nation has launched more orbital flights, the United States or the Soviet Union?

45. Name the four Great Observatories.

46. Which flight first used the new General Purpose Computers?

47. Not counting Skylab, what is the longest American spaceflight?

48. Name the commanders of the maiden flights of *Columbia*, *Challenger*, *Discovery*, *Atlantis* and *Endeavour*.

49. What day of the week did Apollo 11 land on the moon?

50. The crew of STS-47 consists of Hoot Gibson, Curt Brown, Mark Lee, Jan Davis, Mae Jemison and Mamoru Mohri. Name the three "firsts" that this group represents.

51. What is the Air Force nickname for the T-38?

52. What last name appears on shuttle patches five times?

53. Where is the Space Shuttle *Columbia* now?

54. Which astronaut waited longest for his first flight?

55. Who is the only flown astronaut to have been born during the space age?

56. What organization resides at mail code LA?

57. How many positions are currently manned in the Flight Control Room each launch?

58. What is the orbital velocity at geosynchronous orbit?

59. How many reaction control system jets are on each orbiter?

60. Define the term "negative

return."

61. How many Tracking and Data Relay Satellites are in orbit? Five bonus points if you can locate the specific satellites at the east and west positions.

62. During the past several months astronauts in orbit have reported an increased haziness in the atmosphere. To what natural event is much of the haziness attributed?

63. How many acres make up the Johnson Space Center?

64. Who is the manager of the White Sands Test Facility?

65. What is the wingspan of the space shuttle orbiters?

66. Were there any confirmed casualties when Skylab returned to Earth?

67. On its continuing journey to Jupiter, Galileo flew past an asteroid. Name it.

68. How many rocket engines are outside the Visitors Center?

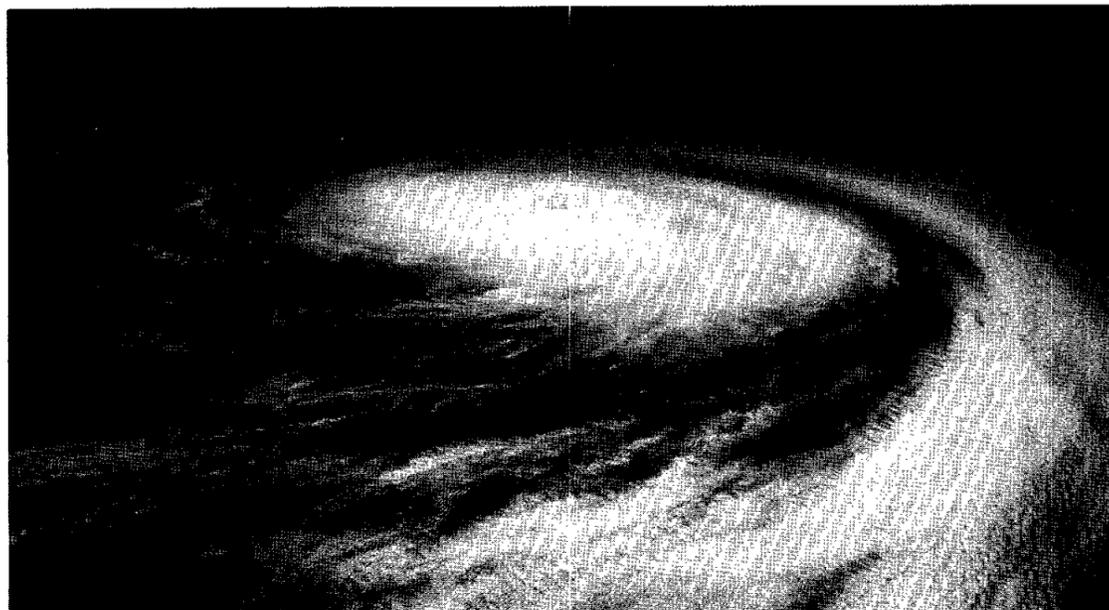
69. The badging facility at the main gate is being moved in preparation of the opening of Space Center Houston. What will its number be at the new location?

70. If the federal government ever declares JSC to be "surplus property," who gets first dibs?

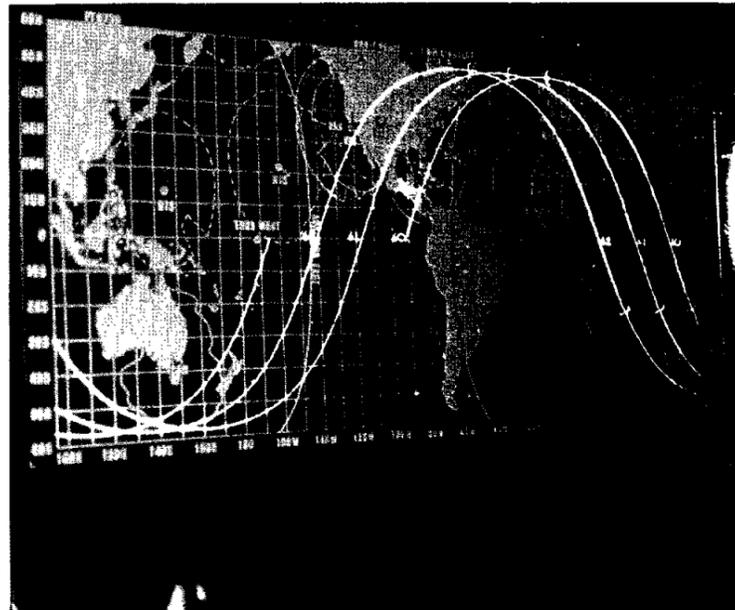
71. Who was the first man to ride the shuttle middeck into space?

72. What was the name of the first dog in space?

73. Who said "Roger lift-off, and the clock is started?"



74. During 1991, astronauts had the opportunity to view and photograph five hurricanes and typhoons. Name three of the five.



75. How far has the orbiter actually moved when the shuttle icon on the MCC world map moves one "blip" or increment on the ground track?

NASA, Italian Space Agency sign space station pact

The Italian Space Agency (ASI) will design and develop two Mini Pressurized Logistics Modules for the Space Station *Freedom* program under a memorandum of understanding signed last week with NASA.

The agreement was signed last Friday by NASA Administrator Richard Truly and ASI President Luciano Guerriero in the presence of

Italian Undersecretary of State Senator Learco Saporito. The two agencies also agreed to work toward expanding the relationship to include provision of a Mini Laboratory as well.

The MPLMs are pressurized logistics modules capable of transporting user payloads and resupply items in a pressurized environment to the Space Station *Freedom* and returning necessary items to the

ground. The MPLMs will be capable of remaining at the space station until the arrival of the next pressurized logistics module. The first MPLM is scheduled to be transported to the space station by the space shuttle in May 1997 and the second in August 1997.

A final decision on proceeding with the design, development, operation and utilization of the ML will be made

no later than February 1993. The ML is a pressurized mini laboratory that will include a subsystem rack and provisions for accommodating a variety of research equipment. In its initial use, the ML will be dedicated to life sciences research. At a minimum, the ML will be capable of accommodating a 2.5-meter tilting centrifuge and three international standard payload racks. The ML, if provided,

would be scheduled for launch in October 1999.

In exchange for ASI's contributions, NASA will provide to ASI a percentage of its share of utilization of space station pressurized volume and accommodations for external payloads, a percentage of its space station utilization resources and the opportunity for ASI to provide space station crew.

Space station passes final design review

(Continued from Page 1)

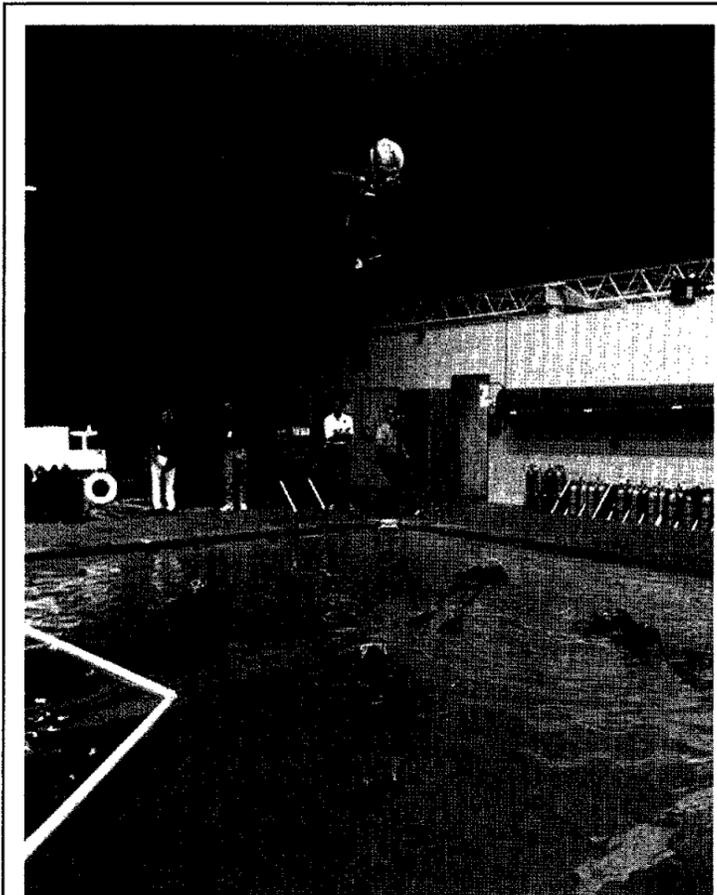
structure, JSC is continuing work to further reduce spacewalk time by using robotics where available.

"We have the capability to do the work all by extravehicular activity within the redesign, but the robotics allows us to offload another half of that, if necessary, he said."

While the restructured space station underwent its final preliminary design review with prime contractor McDonnell Douglas — a major milestone — the Space Station Training Facility was finished in July and the new control center will be ready this month.

Chuck Lewis, manager of the Space Station Mission Operations Projects Office, said installation of equipment into the 30,000-square-foot training facility is under way with laying of data and cable lines in preparation for delivery of the mainframe system in February 1992. The crew station will be delivered in early 1994 in time to support training in March 1995.

The Space Station Control Center, at 102,000 square feet, is not done but workers already occupy the top two floors of the five-story building. Power and data cable installation begins early next year leading toward the first integrated simulation with the training facility in mid-1995.



JSC Photo by Pat Patnesky

SYNCHRONIZED SAFETY — STS-42 astronaut Bill Readdy is lowered into the Weightless Environment Training Facility as part of his emergency egress training. Below him, a school of safety divers awaits in formation.

New strategic plan due out in January

(Continued from Page 1)

of the human presence in space through exploration and utilization for the benefit of all humans. It encompasses the basics of human access to space, doing business differently, investigating new technologies and helping the center's people live up to their full potential.

The section on doing business differently comes first in the plan because making available the resources and skills needed to do the right technical and operational things is of primary importance. New approaches — such as emphasizing common elements that support more than one program and providing on-going support — are critical to JSC's future, he said.

"We are going to own and operate the elements of that program for years

and years and years," O'Neill said. "It isn't just a development program. We've learned that lesson on shuttle and we really want to set that tone for all future program efforts."

The plan also addresses improving JSC's service base — procurement, budget, safety, reliability and quality assurance — which is the underpinning of how JSC does business.

To ensure that everyone at JSC is moving in the same direction, JSC Director Aaron Cohen will chair an executive council where employees can address strategic planning issues and make the plan a living document.

Engineering Deputy Director Max Engert said strategic planning is a key element of the TQM philosophy and the plan will send a message.

"One of the things I expect to see right off the bat when we issue this

plan is that our people will realize that our management is no longer just talking about TQM, but they've actually produced a product they can use," he said.

"I think it will take away a lot of the uncertainty in people's minds. They'll see a future," Engert said. "With this emphasis on doing things differently, I think we're going to see a lot of suggestions, a lot of energy coming out."

The principle benefit of the plan is that it calls for an integrated perspective of all human space flight, said Carl Shelley, deputy manager of the Space Station Projects Office.

"You've now become part of the 'Mission From Planet Earth.' If there are projects that are proposed at JSC that don't fit that mode, they're probably going to have a pretty tough time getting approved."

Seventeen earn Manned Flight Awareness trip

Seventeen JSC civil service employees were honored recently for outstanding effort in support of the Space Shuttle Program.

The group joined 225 other Manned Flight Awareness award winners in an all-expense-paid trip to Kennedy Space Center. The highlight was to have been the STS-44 launch, but the launch was delayed.

KSC Director Forrest McCartney, Space Shuttle Director Bob Crippen and Associate Administrator for Space Flight Bill Lenoir welcomed the honorees, who then received a VIP tour of KSC, a showing of the IMAX film "The Dream is Alive" and a reception in their honor.

Astronauts Jim Buchli and Bob

Cabana presented certificates to Barry Boswell and Bobby Kyle, Space Station Projects; Dennis Hehir, Center Operations; Brian Kelly, New Initiatives; Richard Mastracchio, Flight Crew Operations; Raymond Melton, White Sands Test Facility;

James Mistrot, Orbiter and GFE Projects; Jennifer Newman and Paul Romere, Engineering; Tri Nguyen, Space Shuttle Engineering Integration; Linda Patterson and Gail Schneider, Mission Operations; Raynell Perez and Norma Rhoads, Public Affairs; Susan Sinclair, Safety, Reliability and Quality Assurance; Ann Sullivan, Administration; and Jean Tarply, Space and Life Sciences.



JSC awards space suit contract

JSC has awarded a \$97.3 million extension to United Technologies Corp.'s Hamilton Standard Division's EMU contract. The contract provides for the production and support of the extravehicular mobility unit.

This contract extension, also referred to as a supplemental agreement, provides for additional Extravehicular Mobility Unit hardware, and extends program and engineering support for the EMU program through Sept. 30, 1997. The additional EMU

hardware will support Space Station *Freedom* assembly and operations. The full program extension supports the space shuttle and space station programs.

The cost-plus-incentive-fee/award fee contract is for \$97,333,000. The total estimated cost and fee for contract is increased to \$211,954,655.

The work will be performed at United Technologies Corp.'s Hamilton Standard Division in Windsor Locks, Conn.

Total Quality bulletin board open

Providing more information about training opportunities related to JSC's Total Quality initiative is the reason behind a new computer bulletin board.

The Total Quality Management Training Bulletin Board is available on the PROFS and VAX electronic mail systems. It contains information about courses, seminars and conferences relating to problem-solving skills, employee empowerment and technical tools.

While many of the courses will be offered by the Human Resources Development Branch, the board is designed to share information about training resources among civil servants and support contractors.

"For the board to be effective, we will need input from both contractor and JSC organizations concerning training activities," said Susan Braymer, chief of the branch.

For details, call Jane Kremer, x32601.

Here are answers to Son of SNR's Trivia Challenge

1. T-6 seconds.
2. STS-44 was the 44th shuttle mission.
3. Fred Gregory and Story Musgrave on STS-33 and STS-44.
4. 2,478.
5. Bldg. 2. It was changed in 1974.
6. Alan Shepard's Mercury flight.
7. Malarkey Milkshake after rendezvous officer John Malarkey.
8. 33333.
9. Deedee for the artist who created it, Deedee Tompkins.
10. Jim Buchli
11. Robert "Hoot" Gibson.
12. John Glenn with a 4 hour, 55 minute and 23 second mission. Scott Carpenter runs a close second with 4 hours, 56 minutes and 5 seconds.
13. It is part of the stern post from Capt. James Cook's ship *Endeavour* after which the orbiter was named.
14. It was the centrifuge.
15. Ronald Reagan. George Bush was only president-elect when he visited in November 1988.
16. Tom Stafford had 170 days between Gemini 6A and Gemini 9.
17. Dan Brandenstein.
18. 1985 (nine flights).
19. Exit 25.
20. Jim Lovell after Apollo 8 fired the rockets to start the spacecraft back to Earth.
21. 1992 is International Space Year.
22. Kelly Humphries is the Roundup editor and Pam Alloway and Kari Fluegel are associate editors.
23. Mexico, Canada, France, Saudia Arabia, Germany, the Netherlands and the United States.
24. The Skylab trainer. It's already in place. The building will be constructed around it.
25. 23.
26. Snowstorm.
27. "A Stars and Stripes Picnic."
28. Leroy Chiao.
29. NAS 9-18000
30. Explorer I.
31. Achieve Through Excellence.
32. Flight Control Room, Multipurpose Support Room, Customer Support Room, Spacecraft Analysis Room and Mission Evaluation Room.
33. None.
34. John Blaha.
35. Twelve. Six in front, two aft, two overhead, the airlock and the side hatch.
36. Six.
37. Steve Nagel.
38. *Columbia*.
39. Canada.
40. Fighting in the Persian Gulf had begun. The move was made for security reasons.
41. *Atlantis*.
42. This is our annual freebie due to a typo in the question that we were unable to correct in time. The configuration of the Shuttle Test Station in the Shuttle Avionics Integration Laboratory is OV-095. The Guidance, Navigation and Control Test Station configuration is OV-73. We apologize to the SAIL folks. Add one to your total.
43. It is the water tower.
44. The United States has had 72 missions and the Soviets 71.
45. The Hubble Space Telescope, the Gamma Ray Observatory, the Advanced X-Ray Astrophysics Facility and the Space Infrared Telescope Facility.
46. STS-39.
47. Gemini 7 (14 days).
48. *Columbia*, John Young; *Challenger*, Paul Weitz; *Discovery*, Henry Hartsfield; *Atlantis*, Karol Bobko; and *Endeavour*, Dan Brandenstein.
49. Sunday.
50. Lee and Davis will be the first married couple to fly in space together, Jemison will be the first black woman and Mohri will be the first Japanese payload specialist.
51. Talon.
52. Walker. Three times for Charles Walker and twice for David Walker.
53. It's in Palmdale, Calif., undergoing modifications.
54. Don Lind (19 years).
55. Tammy Jernigan. The "Space Age" was started with the launching of Sputnik in October 1957. Jernigan was born May 1959.
56. The Comptrollers Office.
57. 19. Call signs are Flight, Capcom, Prop, GNC, GPO, FDO, Traj, GC, EECOM, EGIL, Payloads, DPS, FAO, INCO, Surgeon, MMACS, Booster, MOD and PAO.
58. 10,087 feet per second.
59. 44 total. 38 primary and 6 verniers.
60. Used during the launch phase, the term "negative return" indicates that the orbiter has moved far enough downrange that it could not return to the Kennedy Space Center.
61. Four. TDRS 1 and 5 (or A and E) are over the Pacific. TDRS 3 and 4 are over the Atlantic.
62. The eruption of Mt. Pinatubo.
63. 1,618 acres.
64. Rob Tillet.
65. 78.06 feet.
66. A jackrabbit was found dead in the debris crater.
67. Gaspra.
68. Four.
69. Bldg. 110.
70. Rice University.
71. Joe Allen.
72. Laika.
73. Alan Shepard during his first Mercury mission.
74. Hurricanes Fefa and Guillermo during STS-43, Typhoons Kina and Mirelli during STS-48 and Super Typhoon Yuri during STS-44.
75. 70 miles.

Editor's note: We would like to thank everyone who sent in trivia questions for this year's test. We apologize for not being able to use all the submissions, but promise to keep them for next year. Special thanks go to "Trivia gurus" Chris Ramsey and Bob Mooney. Send trivia questions to the Roundup at AP3. See ya next year for Son of a Son of SNR Trivia Challenge.